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*Original Article*

## **Clinical relevance of blood glucose and gastroesophageal reflux symptoms to depressive status in patients with type 2 diabetes mellitus**

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**Running title:** SDS and FSSG in type 2 diabetic patients

**Key words:** Depression, Diabetes mellitus, Frequency scale for the symptoms of gastroesophageal reflux disease (FSSG), and Self-rating depression scale (SDS).

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## Abstract

An interrelationship between diabetes and depression has been recognized. To clarify the clinical relevance of gastroesophageal symptoms in diabetic patients to psychological status, we retrospectively analyzed data for scores of self-rating depression scale (SDS) and frequency scale for symptoms of gastroesophageal reflux disease (FSSG) for 143 patients with type 2 diabetes who visited general medicine. Among the 45 patients enrolled, a group having relatively high SDS ( $\geq 36$ ) showed higher scores for dysmotility symptoms of FSSG than those in a group with low SDS ( $< 36$ ), although patients' characteristics and laboratory data were not different between the two groups. Of note, positive correlations of postprandial plasma glucose (PPG) levels with FSSG scores ( $R=0.321$ ;  $*P<0.05$ ), particularly with reflux scores ( $R=0.455$ ;  $**P<0.01$ ), were revealed, while PPG or HbA1c levels were not correlated with SDS scores. Moreover, SDS scores were significantly correlated with FSSG scores ( $R=0.41$ ;  $**P<0.01$ ), suggesting that depressive status is linked to GERD-related manifestations. Considering that PPG levels were correlated with GERD-related symptoms, individual levels of blood glucose are associated with depressive status in diabetic patients. Collectively, key symptoms related

to GERD and information on glucose levels would be helpful to know the psychological status in diabetic patients complaining of various uncertain symptoms (200 words).